

WHAT IS CLAIMED IS:

1. An electric power steering apparatus comprising:

5        a ball nut rotationally driven by an electric motor through a gear train and having a female thread groove formed in the inner periphery thereof;

10      a rack shaft disposed through said ball nut on the axis thereof and having a male thread groove so formed in its outer periphery as to face to the female thread groove;

15      a ball screw mechanism having a number of circulation balls interposed between the female thread groove and the male thread groove; and

20      a housing for holding said ball nut rotatably through said bearing,

25      wherein elastic members are interposed between said housing and said ball nut in order to permit said ball nut to make a predetermined displacement.

20      2. An electric power steering apparatus comprising:

25      a ball nut rotationally driven by an electric motor and having a female thread groove formed in the inner periphery thereof;

30      a rack shaft disposed through said ball nut on the axis thereof and having a male thread groove so formed in its outer periphery as to face to the

female thread groove;

a plurality of circulation balls interposed between the female thread groove and the male thread groove;

5 a housing for holding said ball nut rotatably; and

a fastening element for fixing said nut to said housing,

wherein said electric power steering apparatus  
10 is provided with fall-out preventing means for preventing said fastening element from falling out within said housing.

3. An electric power steering apparatus  
15 according to claim 2, wherein said housing is constructed of a first housing accommodating said ball nut and said fastening element, and a second housing fixed to said first housing, and  
said fall-out preventing means is a fastening  
20 element contact member, formed on said second housing, for regulating said fastening element from moving in the fall-out direction.

4. An electric power steering apparatus  
25 according to claim 3, wherein said fastening element is a stopper ring fitted to said first housing, and an interval between said stopper ring and said

fastening element contact member is, in an assembled state, set smaller than a thickness of said stopper ring.

5           5. An electric power steering apparatus according to claim 3, wherein said fastening element is a ring bolt helically fitted to said first housing, and

10          an interval between said ring bolt and said fastening element contact member is, in an assembled state, set smaller than an effective helical-fitting length of said ring bolt to said first housing.

15          6. A rack assist type electric power steering apparatus comprising:

              a ball nut rotationally driven by an electric motor;

              a ball screw mechanism interposed between said ball nut and a rack shaft; and

20          a bearing for rotatably supporting said ball nut,

              wherein said ball screw mechanism and said bearing share a lubricant with each other.

25          7. A rack assist type electric power steering apparatus according to claim 6, wherein power transmission means is interposed between said

electric motor and said ball nut, and  
said power transmission means, said ball screw  
mechanism and said bearing share the lubricant with  
each other.

5

8. A rack assist type electric power steering  
apparatus according to claim 7, wherein said power  
transmission means is a gear type power transmission  
mechanism or a chain type power transmission  
mechanism or a belt type power transmission mechanism  
10 or a friction roller type power transmission  
mechanism.